**Problem of the Week (POW) #1 – Geometry**

**First draft due:**

Beta period --> Wednesday, September 10

Zeta period --> Friday, September 12

**Final draft due:**

Beta period --> Wednesday, September 17

Zeta period --> Friday, September 19

\* POW #2 will be assigned on the date when your final draft for POW #1 is due! \*

Option #1:

On the right, you’ll see 5 boxes, from box 0 to box 4.

The goal is to put a number from 0 to 4 inside each box so that these conditions hold:

* The number in box 0 is the number of 0s you use total in the other boxes.
* The number in box 1 is the number of 1s you use total in the other boxes.
* The number in box 2 is the number of 2s you use total in the other boxes. …and so on, and so on…

You can use the same number more than once.

Your job: Find as many solutions as possible and convince the reader of your write-up that you have found all of them.

1st draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Final draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Problem of the Week: Boxes and Numbers**

Geometry/Algebra 2

Mr. Rodriguez

Here’s an INCORRECT way:

0 1 2 3 4

2

2

1

3

2

4

3

0

1

2

Option #2:

When Mr. Rodriguez was a kid, he remembers how much his parents were worried about his phone use. So, they decided to restrict his calls to between 7 pm and 8 pm every night. His friends’ parents did the same thing, too.

Because young Mr. Rodriguez realized that 1 hour wasn’t that much, he decided to limit phone calls to 3 minutes. This included the time needed to place the call.

One night, young Mr. Rodriguez heard some juicy gossip and wanted to spread it around. At 7 pm, he called his friend Jessica. That call ended at exactly 7:03 pm. Then, at 7:03 pm, Rodriguez called a new friend, Joe, and Jessica called another friend, Jamie. At 8:06, Rodriguez, Joe, Jessica, and Jamie each called someone else, and so on.

Your job: Figure out how many friends heard the gossip that night by 8:00.

Here’s what you need to keep in mind:

* The time it takes to make and complete the call is exactly 3 minutes.
* No one calls a person who has already been called.
* The caller always reaches the person being called. (No busy signals or dead lines.)

[](http://www.clker.com/clipart-12243.html)

1st draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Final draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Problem of the Week: Who’s Calling?**

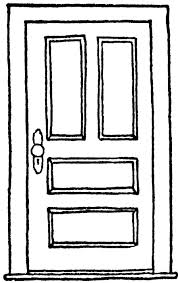
Geometry/Algebra 2

Mr. Rodriguez

Option #3:

1st draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Final draft due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Problem of the Week: Open the Door**

Geometry/Algebra 2

Mr. Rodriguez

Mr. Rodriguez was bored one day and decided to walk around his neighborhood. He noticed this abandoned building, and when he walked inside, he saw 100 closed doors down a long hallway.

First, he walked down the hallway and opened all 100 doors. (He was bored!)

He then walked back to door 1 and didn’t touch it. He kept walking down the hallway, but now he closed every other door.

Once he finished that, he went back to the beginning and opened or closed every 3rd door. If the door was open, he closed it; if the door was closed, he opened it.

He then went back to the beginning and closed/opened every 4th door, depending on whether it was open or closed. Then, when he got back to the beginning, he continued with every 5th, then 6th, and so on…

Which doors remain open once Mr. Rodriguez gets to the end, and ***WHY*** are those doors open? Which doors are opened/closed the most? Why?